



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/868,364	10/12/2001	Franz Schellhorn	P01,0212	8559
26161	7590	02/28/2006	EXAMINER	
FISH & RICHARDSON PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			RUDE, TIMOTHY L	
			ART UNIT	PAPER NUMBER
			2883	

DATE MAILED: 02/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/868,364

Applicant(s)

SCHELLHORN ET AL.

Examiner

Timothy L. Rude

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 26-29, 31-44 and 53-58 is/are pending in the application.
- 4a) Of the above claim(s) 53-58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 26-29 and 31-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claims

Claims 30 and 45-52 are canceled. Claims 26 and 43 are amended. Claims 53-58 are added.

Election/Restrictions

Newly submitted claims 53-58 are directed to an invention that is independent or distinct from the invention election fixed by action on the claims for the following reasons:

Applicant has received at least one action on the merits for claims limited to “the light entry face being formed ...” Claims 53-58 are drawn to non-elected species limited to “more than two entry faces” wherein “each light entry face being formed ...”

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 53-58 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03. Applicant may file a Divisional to pursue non-elected species.

Please note: Applicant claims to have submitted an English translation of a German priority document. Examiner found no such English translation in the record,

so examiner cannot confirm that the subject matter in dispute is actually contained therein.

Claim Rejections - 35 USC § 103

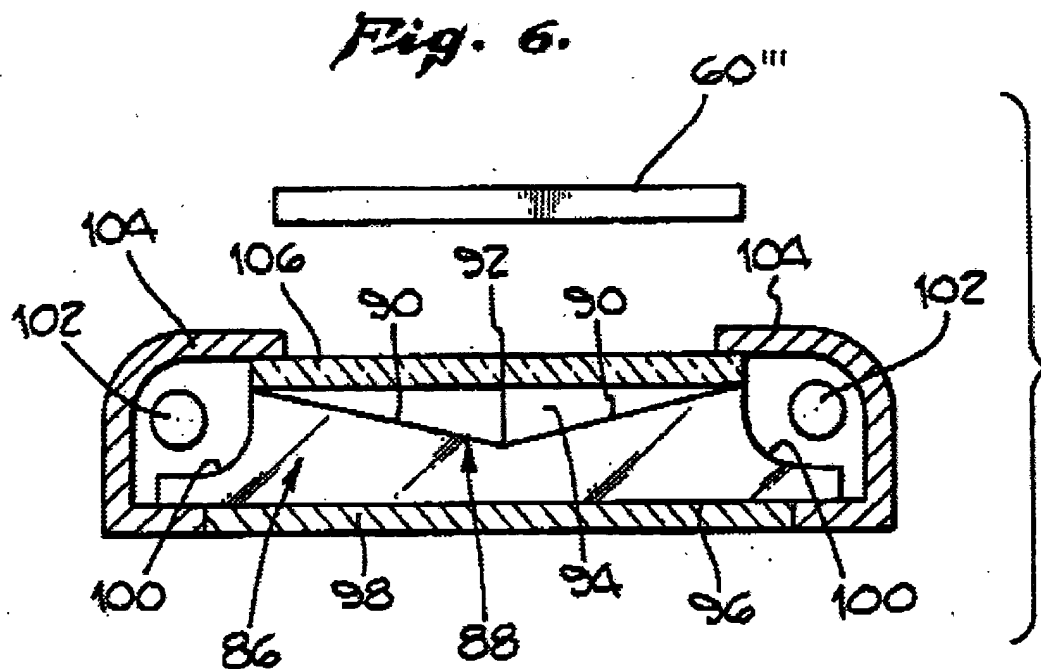
The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

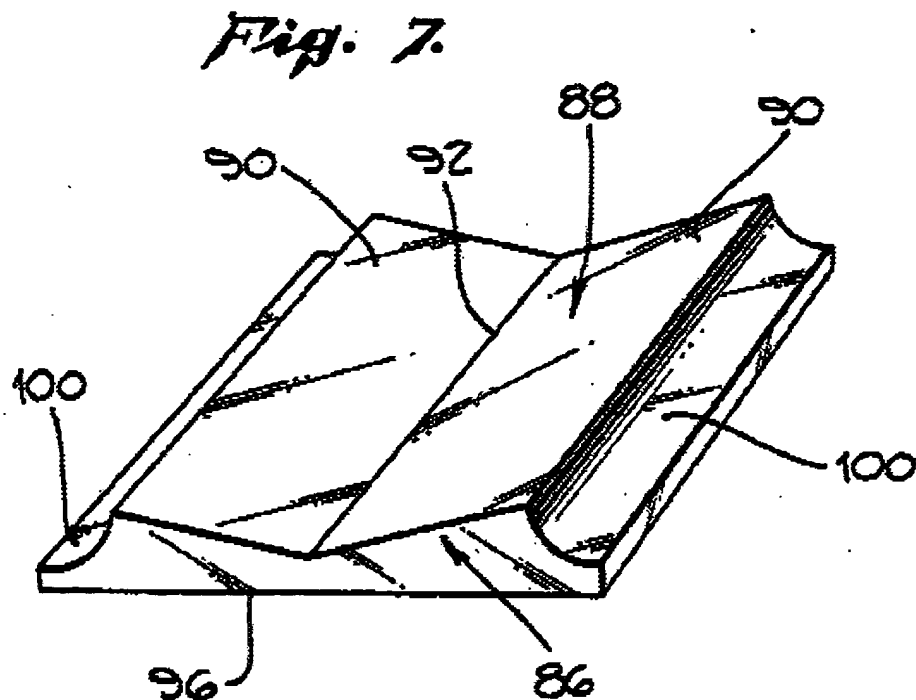
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. Claims 26, 43, 27, 29-31, and 38 rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmanash USPAT 5,211,463 in view of Suga USPAT 6,297,908.

As to claims 26 and 30, Kalmanash discloses [entire patent, especially Figures 6 and 7] a light source element, comprising: a light waveguide, 86; a light exit face, 88, and at least one light entry face, 100, on the light waveguide; a surface, 96, lying opposite the light exit face, and at least some of lateral surfaces [surface facing viewer in Figure 7 and surface behind (away from viewer), as well as the lower vertical portions of the left and right surfaces] connecting the light exit face and the opposite surface being covered with reflectors, 104 on left and right, that at least one of reflect and diffusely return light; and the light entry face [concave surfaces, 100] being formed by a part of at least one of the lateral surfaces and the opposite surface not provided with a reflector and being arranged at an acute angle [concave curve has a portion that is at an acute angle – please note Applicant has not claimed planar (flat) surfaces] relative to one of principal directions of extent of the light waveguide.





Kalmanash does not explicitly disclose an element wherein at least one of the light exit face and the opposite surface of the light waveguide comprise light-scattering sections and plane sections, and an area ratio of the plane sections to the light-scattering sections along the light waveguide is set such that a uniform luminance of the light source element is achieved.

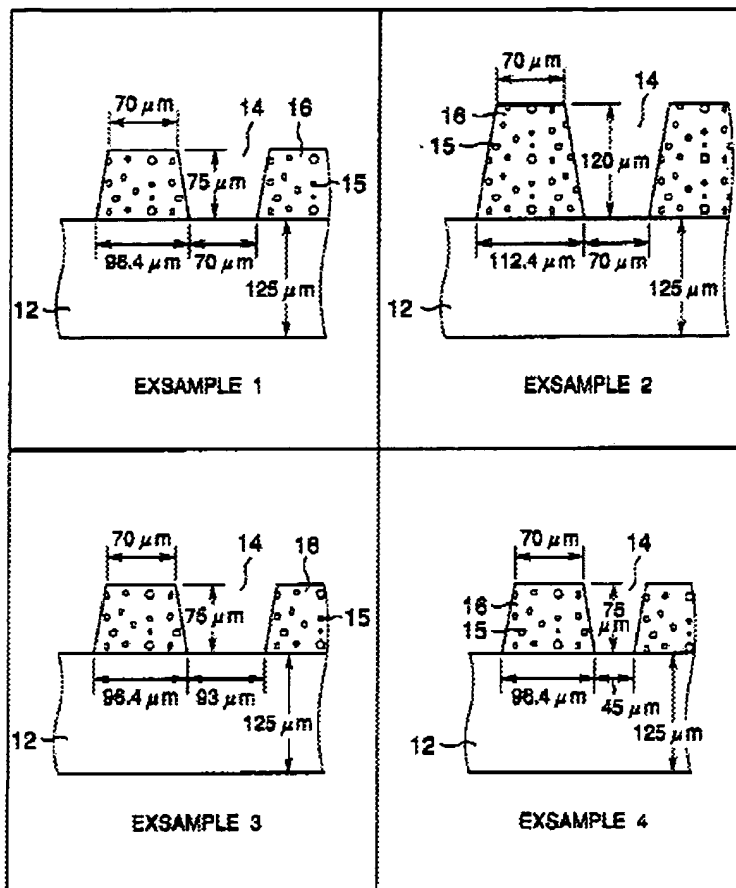
Suga teaches in Figure 12 the use of at least one of the light exit face and the opposite surface of the light waveguide comprise light-scattering sections and plane sections, and an area ratio of the plane sections to the light-scattering sections along the light waveguide is set such that a uniform luminance of the light source element is

achieved to provide improved performance directional light diffusing film [col. 1, line 60 through col. 2, line 5].

Suga is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add at least one of the light exit face and the opposite surface of the light waveguide comprise light-scattering sections and plane sections, and an area ratio of the plane sections to the light-scattering sections along the light waveguide is set such that a uniform luminance of the light source element is achieved to provide improved performance directional light diffusing film.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kalmanash with the at least one of the light exit face and the opposite surface of the light waveguide comprise light-scattering sections and plane sections, and an area ratio of the plane sections to the light-scattering sections along the light waveguide is set such that a uniform luminance of the light source element is achieved of Suga to provide improved performance directional light diffusing film.

FIG.12



As to claim 43, Kalmanash discloses [entire patent, especially Figures 6 and 7] a liquid crystal display [title] with a light source element, comprising:

a liquid crystal element, 60''', arranged at a side of a light exit face, 88, of the light source element;

the light source element comprising a light waveguide, 86, having said light exit face and at least one light entry face, 100;

Art Unit: 2883

a surface, 96, lying opposite the light exit face and at least some of lateral surfaces [surface facing viewer in Figure 7 and surface behind (away from viewer), as well as the lower vertical portions of the left and right surfaces] connecting the light exit face and the opposite surface being covered with reflectors, 104 on left and right, that at least one of reflect and diffusely return light; and

the light entry face, 100, being formed by a part of at least one of the lateral surfaces and the opposite surface not provided with a reflector and being arranged at an acute angle [concave curve has a portion that is at an acute angle – please note Applicant has not claimed planar (flat) surfaces] relative to one of principal directions of extent of the light waveguide.

Kalmanash does not explicitly disclose an element wherein at least one of the light exit face and the opposite surface of the light waveguide comprise light-scattering sections and plane sections, and an area ratio of the plane sections to the light-scattering sections along the light waveguide is set such that a uniform luminance of the light source element is achieved.

Suga teaches in Figure 12 the use of at least one of the light exit face and the opposite surface of the light waveguide comprise light-scattering sections and plane sections, and an area ratio of the plane sections to the light-scattering sections along the light waveguide is set such that a uniform luminance of the light source element is achieved to provide improved performance directional light diffusing film [col. 1, line 60 through col. 2, line 5].

Suga is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add at least one of the light exit face and the opposite surface of the light waveguide comprise light-scattering sections and plane sections, and an area ratio of the plane sections to the light-scattering sections along the light waveguide is set such that a uniform luminance of the light source element is achieved to provide improved performance directional light diffusing film.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kalmanash with the at least one of the light exit face and the opposite surface of the light waveguide comprise light-scattering sections and plane sections, and an area ratio of the plane sections to the light-scattering sections along the light waveguide is set such that a uniform luminance of the light source element is achieved of Suga to provide improved performance directional light diffusing film.

As to claim 27, Kalmanash discloses the light source element according to claim 26 wherein a light infeed unit at an aperture region of a respective reflector is provided at the light waveguide, said light infeed unit comprising a light source, 102, arranged in front of the aperture region such that light radiation emitted during operation by the light source penetrates into the light waveguide with an oblique angle.

As to claim 29, Kalmanash discloses the light source element according to claim 26 wherein the light waveguide comprises a shape such that the light exit face, 88, and the opposite surface, 96, of the light waveguide describe an angle differing from zero.

As to claim 31, Kalmanash discloses the light source element according to claim 26 wherein the reflectors are integrally connected to one another [as assembled and as integrated by lower reflector, 98, per Figure 6].

As to claim 38, Kalmanash discloses the light source element according to claim 26 wherein the light waveguide comprises a projection extending beyond a lateral surface and aligns with the light exit surface, at least one light source being arranged under said projection [top is considered down in Figure 6, please note Applicant has not claimed which way is up].

3. Claims 35 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmanash in view of Suga and Kalmanash.

As to claim 35, Kalmanash in view of Suga discloses the light source element according to claim 26 above, wherein the reflectors are one of reflective and diffusely back-scattering.

Kalmanash in view of Suga does not explicitly disclose the element wherein reflectors are formed of one of a film.

Kalmanash teaches that it is usual for edgelit panels to have a reflective coating [Applicant's film] applied to all surfaces that are not intended to pass light in order to improve efficiency [col. 5, lines 8-16].

Kalmanash is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add reflectors formed of one of a film to improve efficiency.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kalmanash in view of Suga with the reflective film of Kalmanash to improve efficiency.

As to claim 37, Kalmanash in view of Suga, as combined above, discloses the light source element according to claim 35 wherein at least one opening is formed in the film for passage of light radiation [obvious from the above teaching of Kalmanash].

4. Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmanash in view of Suga as applied above in view of Nilsen et al (Nilsen) USPAT 6,356,389 B1.

As to claim 39, Kalmanash in view of Suga discloses the light source element according to claim 38 above wherein the projection faces toward the light source.

Kalmanash in view of Suga does not explicitly disclose the element wherein the surface facing toward the light source is covered with a film.

Nilsen teaches the use of *inter alia* an anti-reflection coating on the surface facing toward the light source [Applicant's covered with a film] to improve light utilization [col. 9, line 58 through col. 10, line 34].

Nilsen is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add an anti-reflection film on the surface facing toward the light source to improve light utilization.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kalmanash in view of Suga with the anti-reflection film of Nilsen on the surface facing toward the light source to improve light utilization.

5. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmanash in view of Suga as applied above in view of Tai et al (Tai) USPAT 6,092,904.

As to claim 36, Kalmanash in view of Suga discloses the light source element according to claim 35 above.

Kalmanash in view of Suga does not explicitly disclose the element wherein the film is formed on a base of polycarbonate.

Tai teaches the use of polycarbonate (col. 4, lines 1-15) as an art recognized material suitable for the purpose of making light utilization efficiency improving structures and/or coatings [MPEP 2144.07].

Tai is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add a base of polycarbonate as an art recognized material suitable for the purpose of making light utilization efficiency improving structures and/or coatings.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kalmanash in view of Suga with the base of polycarbonate of Tai as an art recognized material suitable for the purpose of making light utilization efficiency improving structures and/or coatings.

6. Claims 40 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmanash in view of Suga as applied above in view of Suzuki et al (Suzuki) USPAT 5,949,346.

As to claim 40, Kalmanash in view of Suga discloses the light source element according to claim 35 above.

Kalmanash in view of Suga does not explicitly disclose the element wherein the film is at least one of coated and printed with white color.

Suzuki teaches [col. 8, lines 1-8] the use of a white coating as an art recognized material suitable for the purpose of making a reflector for a light source element [MPEP 2144.07].

Suzuki is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add a film that is at least one of coated and printed with white color as an art recognized material suitable for the purpose of making a reflector for a light source element.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kalmanash in view of Suga with a film that is at least one of coated and printed with white color of Suzuki as an art recognized material suitable for the purpose of making a reflector for a light source element.

As to claim 42, Kalmanash in view of Suga discloses the light source element according to claim 27 wherein at least one light source is a semiconductor light-emitting diode (LED).

Kalmanash in view of Suga does not explicitly disclose the use of LEDs.

Suzuki teaches [col. 3, lines 25-30] the use of at least one light source is a semiconductor light-emitting diode as a light source for low cost and good brightness.

Suzuki is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add a semiconductor light-emitting diode as a light source for low cost and good brightness.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kalmanash in view of Suga with a semiconductor light-emitting diode of Suzuki as a light source for low cost and good brightness.

7. Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmanash in view of Suga as applied above in view of Akahane et al (Akahane) USPAT 5,667,289.

As to claim 41, Kalmanash in view of Suga discloses the light source element according to claim 26 above.

Kalmanash in view of Suga does not explicitly disclose an element wherein the light source element forms a closed ring.

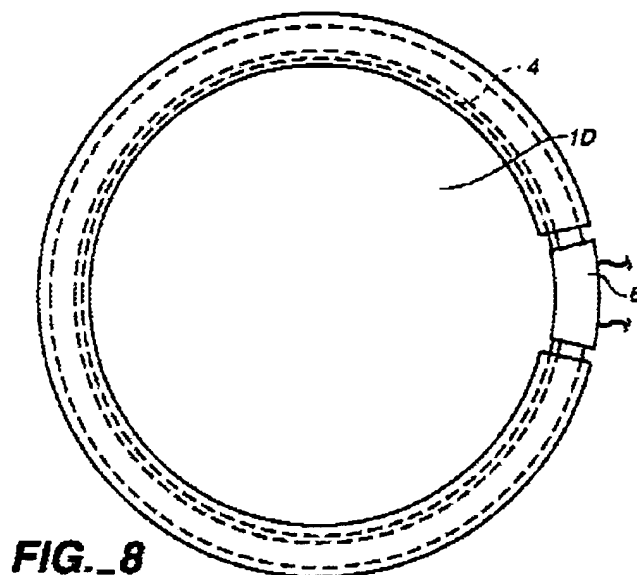
Akahane teaches that his light source element can be any of a number of shapes to accommodate different displays including a closed ring per Figure 8.

Akahane is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add an element wherein the light source element

Art Unit: 2883

forms a closed ring as an art recognized configuration suitable for illumination [MPEP 2144.07] of a display shape.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kalmanash in view of Suga with the element wherein the light source element forms a closed ring as an art recognized configuration suitable for illumination of a display shape.



8. Claims 32-34 rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmanash in view of Suga as applied above in view of Waitl et al (Waitl) USPAT 5,040,868.

As to claims 32-34, Kalmanash in view of Suga discloses the light source element according to claim 26 above.

Kalmanash in view of Suga does not explicitly disclose an element wherein 1) a material of the reflectors is capable of being injection molded and the reflectors are manufactured by injection molding, wherein 2) a material of the reflectors is formed of a thermoplastic polyester on a base of polybutyleneterephthalate, and wherein 3) a material of the reflectors comprises Pocan®

Waitl teaches [col. 4, lines 16-55] the use of injection moldable (1) Pocan® (3) [Applicant's polybutyleneterephthalate (2)] to form reflectors for illuminators that have good heat resistance.

Waitl is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add of injection moldable Pocan® [Applicant's polybutyleneterephthalate] to form reflectors for illuminators that have good heat resistance.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kalmanash in view of Suga with the add of injection moldable Pocan® [Applicant's polybutyleneterephthalate] to form reflectors for illuminators that have good heat resistance.

9. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmanash in view of Suga as applied above in view of Sawayama USPAT 6,048,071.

As to claim 28, Kalmanash discloses the light source element according to claim 27 above wherein at least one projection is formed in at least one of at least one longitudinal lateral surface and the opposite surface of the light waveguide, a lateral surface of said projection being covered by a reflector and another lateral surface of the projection lying free toward the outside and forming the aperture region.

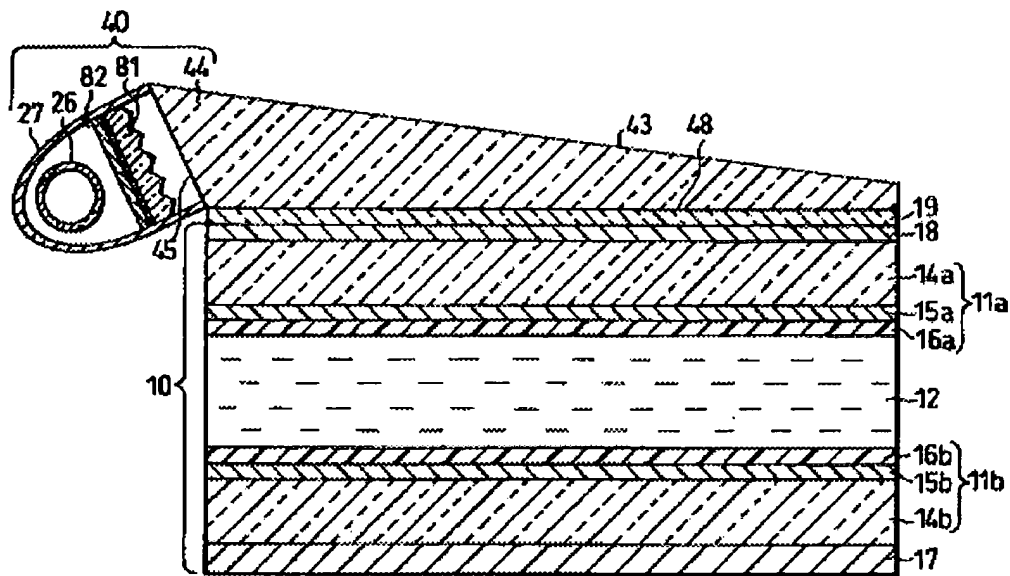
Kalmanash in view of Suga does not explicitly disclose the element wherein the projection is triangular.

Sawayama teaches the use of a triangular projection for the illuminator in Figure 9 to achieve desired direction of the travel of light to illuminate a display [abstract].

Sawayama is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add a triangular projection for the illuminator to achieve desired direction of the travel of light to illuminate a display.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kalmanash in view of Suga with the triangular projection of Sawayama for the illuminator to achieve desired direction of the travel of light to illuminate a display.

FIG. 9



10. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kalmanash in view of Suga as applied above in view of Ge USPAT 6,369,867 B1.

As to claim 44, Kalmanash in view of Suga discloses the liquid crystal display according to claim 43 above.

Kalmanash in view of Suga does not explicitly disclose a display wherein the liquid crystal element is held spaced from the light exit face by spacers.

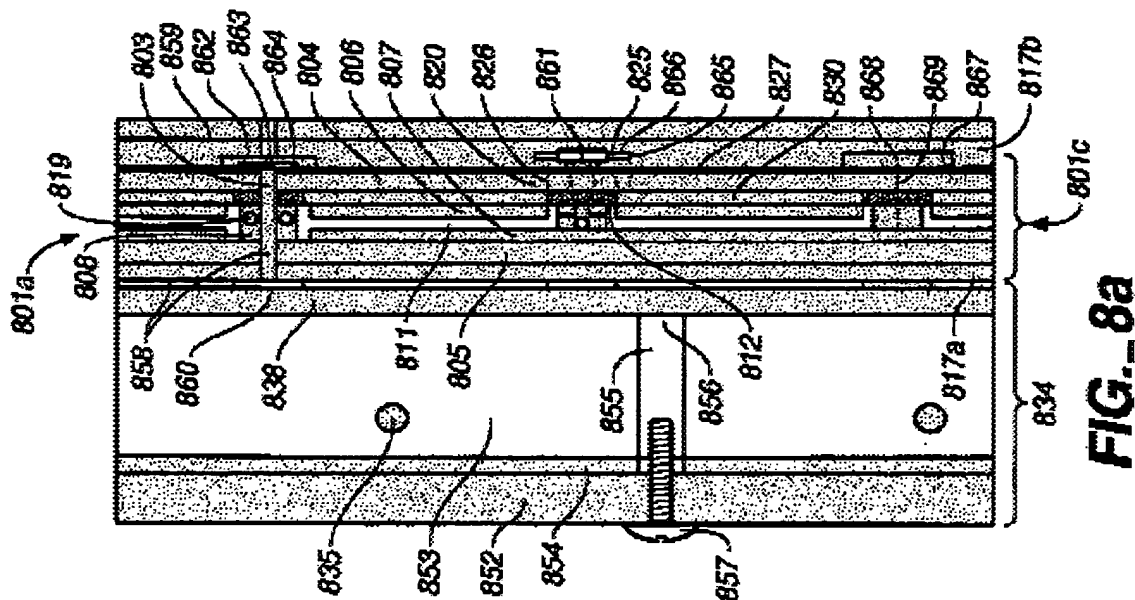
Ge teaches a display wherein the liquid crystal element is held spaced from the light exit face by spacers to provide good strength and support for a diffuser [col. 8, line 63 through col. 9, line 22].

Ge is evidence that workers of ordinary skill in the art would find the reason, suggestion, or motivation to add a display wherein the liquid crystal element is held

Art Unit: 2883

spaced from the light exit face by spacers to provide good strength and support for a diffuser.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Kalmanash in view of Suga with the a display wherein the liquid crystal element is held spaced from the light exit face by spacers of Ge to provide good strength and support for a diffuser.



Response to Arguments

Applicant's arguments filed on 01 December 2005 have been fully considered but they are not persuasive.

Applicant's ONLY substantive arguments are as follows:

(1) Regarding base claims, German priority documents predate applied Suga.

(2) Dependent claims are allowable because they directly or indirectly depend from an allowable base claim.

Examiner's responses to Applicant's ONLY arguments are as follows:

(1) It is respectfully pointed out that Examiner cannot find any English translations of any German priority documents.

(2) It is respectfully pointed out that in so far as Applicant has not argued rejection(s) of the limitations of dependent claim(s), Applicant has acquiesced said rejection(s).

Any references cited but not applied are relevant to the instant Application.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy L. Rude whose telephone number is (571) 272-2301. The examiner can normally be reached on Mon-Thurs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



tlr

Timothy L Rude
Examiner
Art Unit 2883



Frank G. Font
Supervisory Patent Examiner
Technology Center 2800